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AUTHOR Rucker, Gary H.
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ABSTRACT

The Teacher Questioning Measure (TQM) was developed to give the student teaching supervisor an objective means of evaluating the questions asked by the student teachers. This instrument was designed to measure six areas of cognitive skills: knowledge, comprehension, application, analysis, synthesis, and evaluation. Questions are measured on a scale from low levels of cognition, such as simple recall, through progressive stages to questions requiring high level creative thinking. A description is given of how to use the TQM in observing student teachers and how to analyze results. (JD)

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The Teacher Questioning Measure

The instructional characteristics of the "effective" teacher have received close scrutiny from the profession and the public in recent years, yet consensus as to what actually constitutes "effective" teaching is largely non-existent. There appear to be, however, several constants that supersede this controversy. Teacher questioning ability, generally thought to correlate highly with "effective" teaching, is one such constant.

If the ability of the teacher to ask appropriate, powerful questions is esteemed so highly, what is being done to ensure that this characteristic is developed in teacher education programs? Unfortunately, very little. Most teacher preparation programs stress the importance of asking appropriate questions, but provide a minimum of instruction in theory and methodology.

To compound this problem, in many cases the student teaching supervisor has difficulty explaining to the student teacher exactly what is inappropriate or appropriate about the questions the student teacher asks. Far too often the comments the student teaching supervisor makes regarding questions are so subjective in nature that the student teacher has difficulty in determining where problems exist.

The Teacher Questioning Measure was developed to give the student teaching supervisor an objective means of evaluating the questions asked by the student teacher. The instrument is based on Bloom's Taxonomy of Cognitive Skills and the work of Jerome Bruner,

who has theorized that thinking skills may be "chained" together in order to arrive at higher levels of cognition.

Bloom's Taxonomy contains six areas of cognitive skills: knowledge, comprehension, application, analysis, synthesis, and evaluation. These categories have been refined by the TQM in a form perhaps more relevant to the classroom teacher.

Bruner's theory of cognitive chaining is essential to the manner in which the TQM operates. According to this theory, questions should be devised to move from low levels of cognition (a recall question) to higher levels of cognition (a creative question). This makes a great deal of sense: one begins with a simple idea and moves step-by-step to a more complex idea.

Many student teachers, however, fail to remember that higher level questions are appropriate only when a foundation for their use has been laid by asking lower level questions. Too many student teachers have asked a demanding critical question only to be rewarded with blank looks. This can be avoided if the student teacher begins a series of questions with a lower level question students can answer, and then gradually moves to higher level questions by asking questions at each level along the way.

Here's how the TQM works. The recording instrument may be used in two ways. First, tallies may be recorded in the "Convergent" or "Divergent" columns in order to arrive at a total for each, thereby giving a general picture of the teacher's questioning strategies. A more detailed account of questioning may be obtained by recording questions in their appropriate columns in numerically sequenced

order (i.e. question #1 may fall in the Recall column, question #2 in the Classification column, question #3 in the Synthesis-Analysis column, question #4 in the Recall column, and so forth). A dash (-) should follow the last question in a given sequence of questions. Questions that appear to fall into two categories should be recorded in the higher category. Observations may be made directly or by tape recording. A tape recorded class session gives the evaluator flexibility to replay parts of the lesson.

Two levels or means of reporting data are possible. For a general view of the teacher's questioning strategies, tallies in the "Convergent" and "Divergent" columns should be totaled in the right-hand column and divided by the total number of tallies. For example, if 40 of a teacher's 50 questions were Convergent in nature, 40/50=80% and 10/50=20%. A detailed account of teacher questioning may be obtained by totaling the tallies in the individual columns and arriving at percentages using the method described above. Next, the "chaining" of questions to arrive at higher levels of cognition may be examined by reporting question sequences at the bottom of the instrument. Questions should be sequentially listed using the number of the question (i.e. 1,1,2,4,1,4,1,- = Recall, Recall, Comparison, Classification, Recall, Classification, Recall, end of sequence). A visual representation of data may be obtained by constructing a pictogram using the percentages and categories described above.

For the purposes of the TQM, categories are defined in the following manner:

Convergent questions are those which focus on a single, literal answer. ("Name the Presidents of the United States.")

1. Recall questions are those which expect a single answer and/or the simple relating of items in which there is some tie. ("What date did LBJ take office?" "List all of the things that come to mind when you hear the word novel.")
2. Comparison questions are those in which the student is expected to list similarities and differences. ("List the differences between the Battle of Gettysburg and Custer's Last Stand.")
3. Deductive questions begin with a generalization and arrive at a specific. ("Given the generalization that animals require territory in which to live, cite specific places where this is true."
4. Classification questions are those in which a student is expected to put together words, ideas, or objects into a given classification system. ("Some of these words are nouns, some verbs. Place them in the correct group: house, running, put, trousers, water." "Group the following dates: 1812, 1941, 1776, 1917, 432 BC, 339 AD.")

Divergent questions are those in which the student is expected to give two or more answers to a problem

5. Synthesis/Analysis questions are those in which the student is asked to combine or take apart an idea into its separate components. ("Combine the facts you have about the coyote and the sheep and state the inter-relationships you see." "Analyze the story. List the sequence of events and explain each.")
6. Inductive questions presuppose specifics, and the answer derived is a generalization. ("Given the following data about the migration of the Canadian Goose, what principle can you formulate?")
7. Critical questions make use of the forms previously listed. On the basis of a quantitative or qualitative selection, a judgment is made. There may be no correct answer. ("Given those two poems, which do you think expresses a deeper, more profound image of tragedy? Why?")
6. Creative questions have an outcome in which something new and/or original is the output. ("Invent a new symbol for our language." "Invent a country and construct a Utopian society.")

Data gathered using the TQM must be viewed in perspective; recall level questions may be very appropriate for a specific activity, while classification questions may be more appropriate

for another activity. The TQM cannot make judgments regarding the value of one type of question in relation to its use in a particular activity. This must be the responsibility of the supervisor and student teacher.

The instrument may be used to examine a written examination by coding question #1 in the appropriate column, etc. Theoretically, examination questions should provide for "chaining" to stimulate higher levels of cognition and to permit students to display their knowledge at several different levels. For example, an examination with questions solely at the recall level does not allow the student who is a creative thinker to demonstrate his strengths.

Since most student teachers are unaware that the majority of their questions are at the convergent level and do not stimulate higher levels of cognition, they should be encouraged by their supervisors to use the results of the TQM as a base from which to jot down question sequences as part of their daily preparation. As the student teacher gains experience and expertise, internalization of appropriate questioning sequences should occur. The TQM can be a valuable instrument in facilitating this growth.

TEACHER QUESTIONING MEASURE

Teacher: M.J. Date: 9/17/79

Observer: P.D.S. Grade: 6

Lesson Title: Glossary Work Length: 14 min.

Lesson Objective: Students are to look up assigned words in a glossary and use each word in a complete sentence.

CATEGORY	TALLY	TOTAL	%
CONVERGENT:	[redacted]		
1. Recall	13, 15, 16, 18- 1, 2, 3, 4, 8-9, 10, 11, 12	13	72
2. Comparison	5,	1	6
3. Deductive			
4. Classification	6, 7, 17	3	16
DIVERGENT:	[redacted]		
5. Synthesis/ Analysis	14-	1	6
6. Inductive			
7. Critical			
8. Creative			
TOTAL	18	18	100%

Question Sequence: 1111244 1-
11111 5-
1141-